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ABSTRACT

The standard measures of student performance in colleges and universities--grade point average (GPA), retention rates, and graduation rates--are examined for their usefulness in evaluating an institution's effectiveness in fulfilling its mission. Problems are noted with the GPA with all courses being treated the same and student load being ignored. A quality index that is based on course differentiation and academic points in relation to a hypothetical standard is recommended to complement the GPA. Further, a retention rate that includes transfer-out and transfer-in students as well as the number of semesters attended in relation to the possible number of semesters is recommended. It is also recommended that the graduation rate be re-defined to include transfer-in and transfer-out students as well as the number of semesters attended in relation to the possible number. Finally, an attitude measure is recommended. It is argued that part of the effectiveness of an institution is reflected in the attitude of students, regardless of grades, retention, and graduation. (Author)

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Which Student Outcome Measures Are the Most Important to the Institution?

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ABSTRACT

The standard measures of student performance in colleges and universities -- GPA, retention rates, and graduation rates -- are examined for their usefulness in evaluating an institution's effectiveness in fulfilling its mission. Problems are noted with the GPA with all courses being treated the same and student load being ignored. A quality index that is based on course differentiation and academic points in relation to a hypothetical standard is recommended to complement the GPA.

Furthermore, a retention rate that includes transfer-out and transfer-in students as well as the number of semesters attended in relation to the possible number of semester is recommended. It is also recommended that the graduation rate be re-defined to include transfer-in and transfer-out students as well as the number of semesters attended in relation to the possible number.

Finally, an attitude measure is recommended. It is argued that part of the effectiveness of an institution is reflected in the attitude of students regardless of grades, retention, and graduation.

Which Student Outcome Measures Are the Most Important to the Institution?

Much of what we call student characteristics research in the university setting is based on a set of traditional student outcome measures such as grade point average, retention, and graduation. These outcome measures are considered valid reflections of the purposes of a college or university and it is assumed that if these measures are adequate, then the students are performing well and the institution is doing its job, yet each of these measures warrants an examination of its underlying assumptions and consideration of its importance.

The University of New Mexico has as part of its mission that it " . . . helps its students to acquire needed information and skills as well as develop critical judgment and a capacity for discovery" (University of New Mexico Bulletin: Catalog 1983-85, p. 10). To live up to this part of its mission, this institution needs to have measures that reflect the acquisition of "needed information and skills." The most common measure is the individual course grade and it seems perfectly reasonable to use course grades as one measure of the acquisition of knowledge amd skills. It also seems reasonable to use the number of courses (retention) taken and even whether or not a pre-determined number of courses has been taken (graduation), but what may not be reasonable is the way institutions use these measures. Each of these--grades, retention, and graduation--can be analyzed to determine its value as an institutional outcome measure.

Looking first at grades, it currently does not even seem to be a question of what kinds of courses are taken. Each student is free, within placement policies and pre-requisite restrictions, to take whatever courses are appropriate for his or her interests, but there is an existing assumption that

acquiring information and skills at a college or university refers to a certain level of learning. This is not to imply that developmental or remedial courses are outside the purview of colleges and universities. What it does seem to mean is that higher level courses reflect qualitative learning and that our index of achievement in courses needs to reflect this.

What is missing then in looking at grades and especially GPA is that there is no differentiation among the courses. Every course is the same in regard to GPA. An 'A' is an 'A' regardless of course. A GPA of 3.0 in no way indicates what courses are involved in this 'B' average. A fairly cumbersome outcome measure that would accommodate this would be a list of courses and the respective grades--a transcript in other words. The person studying this outcome measure would then be able to respond to the stated mission of the university that the students acquire information and skills. The courses indicate what kind of information and the grades indicate to what degree. This does not lend itself to global analyses, but at least it makes it clear what the situation is.

The notion of differentiation among courses is not new. Public schools have long struggled with which courses to consider in choosing a valedictorian. The universities have also dealt with this and have traditionally not awarded credit for remedial courses nor included these courses in calculating the GPA. That situation has changed at the University of New Mexico. Because the funding formula is based only on credit courses, it became necessary to give credit for remedial or developmental courses to generate the needed operating revenue. Once credit was given, the grades became a part of the GPA. So at UNM, a GPA as an index of acquiring knowledge and skills is immediately misleading at one level because developmental courses carry the same weight as more advanced classes in history, calculus, economics, biology, and so on. The transcript can

and should be used to judge individual students, but a group index that would reflect to some degree that students are gaining knowledge and skills of a certain kind is not available.

This lack of differentiation among courses is further compounded by ignoring the differences among the normal levels of 100, 200, 300, and 400 level classes. A GPA is based on the assumption that there is no difference among these levels. This is probably a valid assumption as long as students accumulate hours at these levels in similar amounts; however, the pattern does not seem to be one of equivalent progress through the levels with the possible exception of graduating students--all with the same number of hours. But there are more students who do not graduate than there are those who do, which seems to suggest that the concept of GPA is misleading the majority of the time.

Still another difficulty with the GPA as an outcome measure comes from the concept itself: it is an average. It ignores the number of courses (hours) that students take. Of course, if everybody takes about the same number of hours, it makes no difference. But when comparisons are made or when trends are checked the GPA is again a misleading index. To illustrate this problem with the GPA, it can be pointed out that UNM has a policy that any GPA for a group will be determined by adding all the points and all the hours and dividing once rather than averaging all the GPA's. This reduces the problem of differences in hours not being captured by the GPA. Kirk Minnick and I investigated this problem in relation to entering test scores and found a better relationship between ACT scores and points than with GPA (Young & Minnick, 1979). The implication is that students with higher test scores not only get higher grades but take more courses as well. The size of a student's load is significant. Hypothetically, 15 hours of 'B' indicates more learning than 9 hours of 'A' if test scores are

useful measures. The GPA can not capture this difference, although one component of the GPA--points--seems to come closer.

The use of GPA as an outcome measure becomes progressively more suspect, but because GPA is so rooted in tradition, it would be extremely difficult to replace it; however, GPA could always be dealt with in categories such as freshman GPA, sophomore GPA, and so forth. GPA could also not include developmental courses. In this way this index of learning would be more meaningful but more cumbersome. Perhaps a new index--a quality index--could be devised to complement the traditional GPA. Such an index might be the number of points times the course level (assigning the 100 level classes a level of '0') divided by the potential maximum of points to create a percentage. A quality index could be determined for each semester as it could for cumulative semesters. This index would simply be in the form of a percentage. For example, a student's performance might result in a quality index of .75. This indicates that this student achieved 75 percent of the possible points for this period of time. The possible would be based on an 'A' average for some agreed upon number of hours per semester, say 18 hours for fall and spring and 12 for summer. The QI of .75 means that the student earned 54 points out of a possible 72. This system also captures the number of semesters as the possible number of points goes up each term.

In addition to GPA, another type of outcome measure that colleges and universities work with and need to work with is a retention index. It is in this domain that considerable confusion exists. As was pointed out earlier, the GPA may be a faulty index of learning but at least everybody knows what a GPA is. When talking about retention, people seem to have a variety of definitions. Of these, two general concepts seem to exist. One approach is the percentage of a defined group of students or cohort in attendance at any semester. A second

is the percentage of students eligible to return for a semester who actually do return.

The second definition is clear enough. It also is advantageous in that it reflects transfer students, but its underlying assumption is that retention is a semester by semester concern where traditionally retention has been used to reflect the staying rate over long periods of time. Nonetheless, this kind of retention figure can be quite useful to an institution in revealing semester by semester change.

The first approach is more traditional and is generally calculated by dividing the number in attendance for any semester by the original size of the group without the number graduating. In arithmetical terms the numerator represents the number in attendance; this number tends to decline each semester. The denominator represents the original size of the group and this number remains nearly constant until students begin to graduate. The assumption underlying this approach to retention is that an institution exists in isolation. Students who transfer to other institutions are not counted for the numerator. Retention refers to students returning to the same institution. A far more meaningful index would indicate what percentage of students are in attendance in higher education. This would capture the idea that students transfer. Parenthetically it can be added that this does not detract from the budget concern of needing to know how many students return to the same institution because that concern without dealing with students transfering in is not reflecting the true situation. It would also prevent notions that a 60 percent retention rate after three semesters means that 40 percent of the students in a given group have dropped out when the truth may be that 80 percent of this group are attending institutions of higher learning.

There is difficulty in operationalizing this approach to a retention index. Many institutions do not know how many of their departing students go on to other schools. This is sometimes accommodated by interpreting any student who leaves with a 2.0 or higher GPA (or a set level on a quality index in the future) as a continuing student (cf. Young, 1982). Another technique would be to assign each student transfering in to a given cohort based on his or her previous institution. In calculating the retention rate, these students would be added to both the numerator and the denominator. For example, a hypothetical cohort starts with 1,000 students. The second semester, 600 of these return. The retention rate for one semester is 60 percent, but 100 students transfer in who began their college careers the same time but elsewhere. The retention rate then changes to 64 percent (700 divided by 1,100, rather than 600 divided by 1,000). This still misses the students transfering out. If the assumption that transfers-in equals transfers-out is accepted, then the transfers-in are added only to the numerator. In the hypothetical cohort of 1,000 the retention rate is now 70 percent. If, however the transfer-in rate equaling the transfer-out rate assumption is not acceptable, then we are left with some uncertainty. Nonetheless, some step to include the transfer students (both "in" and "out") would be an improvement. The easiest method would be to assign incoming students to a specific cohort and then decide whether to add these numbers to both the numerator and the denominator or just the numerator.

The remaining point to consider in using cohorts to determine retention or persistence is time, similar to the GPA discussion. Retention is not presented at all in the framework of available time. Institutions simply indicate how many students are here for any given semester regardless of how many semesters they have attended. For example, assume again the hypothetical cohort of 1,000 students. We'll ignore the transfer problem for now although this would not

complicate the computation. For the sixth semester after this cohort began, there were 500 students in attendance. Of these students, 50 had attended each semester consecutively including two summer sessions. They have attended seven semesters, counting the summers as one-half. Another 200 had attended the six regular semesters but no summer sessions; 100 students had attended five semesters, 100 four semesters, and for 50 students this was only their second semester. If the number of students is multiplied by the number of semesters and these figures added together, then a retention figure can be determined by dividing the original number times the number of available semesters, six in this case (summers are not normally expected). The numerator in this example is 2,550: (50 x 7) + (200 x 6) + (100 x 5) + (100 x 4) + (50 x 2) and the denominator is 6,000: (1,000 x 6). The retention rate is then 43 percent, not 50 percent. This more accurately reflects the retention rate. The question is not simply how many are here any given semester with the necessary corrections for transfers, but what percentage of semesters have been attended by a given group at a given time?

There are two more types of outcome measures that will reflect what is happening at an institution of higher learning. The first is the graduation rate which is similar to the retention problem. Do we mean internal graduation only or do we mean graduation anywhere? What period of time is meant for a graduation rate? How much of a stop-out period of time should be allowed? These questions and others need answers before a meaningful index can be calculated, but graduation rate can be worked through much like the retention rate. It can even incorporate a semester-attended to semester-available ratio. It also seems desirable that a graduation rate--like a retention rate--should reflect the transfer students, but there does not seem to be the need to

explicate this outcome measure in any more detail for this presentation. Interested individuals can apply the principles to fit their own institutions.

The remaining outcome measure is one that is not used but is one I would argue is necessary. Regardless of whether students graduate, stop-out or drop-out (including transfering), these people will enter the world of tax-paying citizens eventually. The institution has a mission of imparting knowledge and improving skills. What I want to suggest is that this implies that students will have a positive attitude about the institution. The assumption is that two individuals with similar ability will differ in the level of learning largely because of a difference in attitude. A positve attitude about the source accompanies learning; hence a positive attitude about the institution is also a desirable outcome. (Editorially if a positive attitude is not somehow implicit in the goal of developing knowledge and skills, it would make good sense to promote such an objective.) The idea is that students should feel good about their experience at the university. If they leave higher education after one semester, they should feel that their experience was worthwhile. They learned something and especially they learned that this was not for them. The positive attitude can be promoted by accepting the notion of "dropping out" as a viable alternative. Students should be able to attend a college or university to learn something, without the pressure that they have failed if they don't graduate. To illustrate, let's consider the University of New Mexico's basic skills classes. Students with low admission scores are required to take courses in their weak areas. Even though many of these students do not remain in school and certainly do not graduate, they learn something before returning to the job market. The question is whether they feel that their experience was worthwhile. In all liklihood, they learned something and they improved their skills. They probably also become aware that they were not suited for higher education. But

the institution gave them the chance and honestly provided them with a reasonable opportunity. Thus the individual realizes that the problem with advanced schooling lies within himself or herself and not the institution.

It is always difficult to measure attitude, and certainly measuring the attitude of students leaving school will be no easier. In some cases, the students disappear without any exit procedure and students who stop out and return and stop out again become candidates for this kind of measurement each time. Nonetheless, the only way appears to be the carefully designed exit questionnaire that will indirectly deal with the question of attitude toward the institution.

In review, institutions of higher learning have as one of their goals that students will gain knowledge and skills. Acquisition of knowledge and skills is reflected in the GPA, especially if complemented by a quality index. Similarly, acquisition of knowledge and skills is reflected by how long students remain in school as reflected by a retention rate that includes transfer students and semesters attended in relation to available semesters. Certainly acquisition of knowledge and skills is reflected in a graduation rate, especially one that considers, like retention, transfer students and the amount of time. Finally, I am arguing that acquisition of knowledge and skills is also reflected in an index of satisfaction. Each of these outcome measures can be useful for colleges and universities in designing its programs and course offerings either to accommodate student trends or to take steps to counteract them.

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